

## REMARKS

In accordance with the above amendments, the original slate containing claims 1-17 has been canceled and replaced by a new slate containing claims 18-34 which are believed to more accurately describe applicants' invention. The error on page 6, line 6, of the specification has been corrected.

It is believed that the new slate of claims overcomes the rejections raised by the Examiner in Item 1 of the Official Action, the merging of claims 12 and 13 having been rendered moot, the proper subscripts being used for the chemical formulas and the acronyms have been replaced by spelled out names.

It is noted that former claims 1 and 4 were rejected under 35 USC § 102(b) as being anticipated by Elrick et al (U.S. 4,029,529). This rejection is respectfully traversed. It is noted that the Elrick et al reference is exclusively related to composite modified solid rocket propellants containing nitrocellulose along with acrylic polymers and crosslinking agents. While the term "single base propellant" appears in that patent, all the examples are directed to double or multiple base propellants, solid propellants with no suggestion of replacing high energy plasticizers with non-energetic plasticizers. The "replacement" of DNT, NG, or other plasticizing materials is neither suggested nor taught. Although the reference does discuss a wide variety of solvents and plasticizers and does mention dibutyl adipate in Column 4, it also states beginning at line 5 of Column 4 that "In general, any

solvent or plasticizer for nitrocellulose can be used as a solvent for the mixed resin propellant system of this invention." This clearly suggests no preference whatsoever nor any reason for selecting a particular plasticizing compound. Thus, Elrick et al fail to recognize any of the thermochemical/energetic trades that are recognized by the present invention, i.e., that generally lower concentrations of certain non-energetic plasticizers can replace generally high concentrations of relatively energetic plasticizers without affecting overall performance.

It is further noted that the original slate of claims was rejected under 35 USC § 103(a) as being unpatentable over Oversohl et al (U.S. 3,364,086) in view of Elrick et al (U.S. 4,029,529) and further in view of Plunguian (U.S. 3,451,883) and Yunan (U.S. 5,187,320). This rejection is also respectfully traversed.

Oversohl et al does in very general terms describe single base propellant manufacture indicating that single base propellants may contain nitrocellulose, plasticizers and stabilizers and that patent does demonstrate the use of diphenyl amine and ethyl centralite as stabilizers for nitrocellulose; however, the patent does not identify specific plasticizers that can be used to replace energetic plasticizers including dinitrotoluene in a single-base propellant formulation. These are propellants for yet other uses such as cast rocket propellant grains. The disclosure of Oversohl et al, like Elrick et al, fails to recognize that generally lower concentrations of certain non-energetic plasticizers can

successfully replace high concentrations of relatively energetic plasticizers such as DNT. Thus, Oversohl et al adds little to Elrick with regard to the discovery of the teachings of the present invention.

Likewise, the Plunguian and Yunan references are not related to single base propellants at all, but diverse uses of nitrocellulose. Plunguian mentions a wide variety of plasticizers as being suitable for his invention and specifically identifies many families of nitrocellulose plasticizers. Among these are adipates and citrates. However, this reference also fails to recognize the problem solved by the present invention and there is no suggestion that adipates and citrates would be usable in single base propellants to replace generally larger amounts of relatively energetic plasticizers such as DNT.

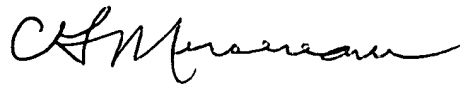
Yunan, likewise, identifies a wide variety of nitrocellulose plasticizers and speculates that citrate plasticizers are good because they do not affect the crystallinity of the solid explosives used in most plastic bonded explosives (which are unrelated to single base propellants). Note further that Yunan utilizes industrial grade nitrocellulose which is known in the art to be lower in nitrogen content and, therefore, unsuitable for the manufacture and use in single base propellants.

After a careful analysis, it is the position of the applicants that the combination of references suggested by the Examiner in fact does not suggest the inventive step that forms the basis for

the present invention. The Examiner is therefore requested to reconsider her position and withdraw the rejections. If she is so inclined, and issues remain which it is believed can be resolved by telephone interview, the Examiner is requested to call the undersigned attorney at her convenience to discuss same.

Respectfully submitted,

NIKOLAI & MERSEREAU, P.A.

A handwritten signature in cursive script, appearing to read "C. G. Mersereau".

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